

Accepted Manuscript

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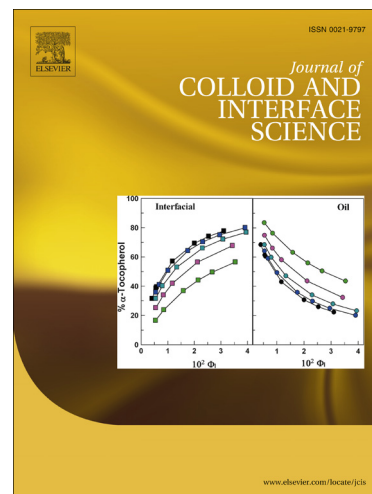
PII: S0021-9797(14)00866-2
DOI: <http://dx.doi.org/10.1016/j.jcis.2014.11.018>
Reference: YJCIS 19985

To appear in: *Journal of Colloid and Interface Science*

Received Date: 4 September 2014
Accepted Date: 5 November 2014

Please cite this article as: D.K. Dumbre, T. Mozammel, PR. Selvakannan, S.B.A. Hamid, V.R. Choudhary, S.K. Bhargava, Thermally decomposed mesoporous Nickel Iron hydroxalcite: An active solid-base catalyst for solvent-free Knoevenagel condensation, *Journal of Colloid and Interface Science* (2014), doi: <http://dx.doi.org/10.1016/j.jcis.2014.11.018>

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Thermally decomposed mesoporous Nickel Iron hydrotalcite: An active solid-base catalyst for solvent-free Knoevenagel condensation

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Abstract

Thermal decomposition of co-precipitated Ni-Fe-HT materials led to the formation a mesoporous Ni-Fe-HT catalyst and we have demonstrated here its active role as solid and active catalyst for the Knoevenagel condensation reaction of various aldehydes with active methylene compounds (R-CH₂-CN, where R = CN or CO₂Et). High product yields are obtained at moderate temperature under solvent-free conditions and the catalyst can be easily separated from the reaction mixture, simply by filtration and reused several times without a significant loss of its activity. Since these mesoporous metal oxides derived from the NiFe hydrotalcites, their basicity mediated abstraction of the acidic protons from the active methylene compounds was responsible for their catalytic activity under solvent-free conditions.

Keywords: Knoevenagel condensation, Solvent-free reaction, Aldehydes, Active methylene compounds, Ni-Fe-HT.

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